

REMARKS

Receipt of the Office Action mailed November 26, 2010 is acknowledged. Upon entry of the present Amendments and Response, claims 23-37 are pending in this application.

By this amendment, claims 7-22 are cancelled, and claims 23-37 are added. Support for the new claims may be found, for example, in the Specification p. 1, ll. 1-3; p. 2, ll. 5-9; page 2, ll. 21-24; Examples 1-2, pages 21-27; and original claims. No new matter is added.

Entry and consideration of the following remarks are respectfully requested as they are believed to place the application for condition for allowance.

Claim Rejections

I. Rejection Under 35 U.S.C. §103

The Office Action rejects claims 17-22 under 35 U.S.C. §103(a) over U.S. Patent No. 5,876,739 to Turnblad *et al.* ("Turnblad") in view of WO 01/26468 to Senn *et al.* ("Senn") and U.S. Patent No. 4,523,947 to Szczepanski *et al.* ("Szczepanski"). By this amendment, claims 7-22 are cancelled, rendering the rejection moot, and claims 23-37 are added. Applicants respectfully traverse the rejection as it may apply to the new claims.

A. Failure to Establish a *Prima Facie* Case of Obviousness for New Claim 23

The Examiner fails to establish a *prima facie* case of obviousness for new claim 23. The prior art references fail to provide any teaching or motivation to coat a seed of corn with an insecticide to minimize the injury to the corn caused by a subsequent application of herbicide. Instead, the references only show that the individual components were known.

Turnblad is asserted as the primary reference to teach adding both an insecticide and an herbicide as recited in the method of new claim 23. Admittedly, Turnblad lists an insecticide and an optional herbicide, but Turnblad is directed to an insecticidal coating that reduces the phytotoxicity of the insecticide on the seed. *See* Turnblad Abstract. It does not teach or suggest using the insecticide to protect the seed against injury caused by the herbicide. In fact, Turnblad merely mentions numerous optional herbicides, none of which are actually tested or tried.

The Examiner on page 4 of the Office Action acknowledges that Turnblad fails to provide any specific teaching exemplifying a claimed insecticide and herbicide being applied to

corn. However, the Examiner asserts that Senn teaches that compounds thiamethoxam or imidacloprid can be applied directly to the seed and Szczepanski teaches a method of using triazines for protecting maize plants from the harmful effects of chloroacetamides. *See* Office Action, page 3. Thus, the Examiner concludes that Senn and Szczepanski provide the requisite motivation to apply the components as recited in the claimed method.

However, neither Senn or Szczepanski cure the deficiencies of Turnblad. Senn does not suggest a reason to select and use the compounds described in Senn, combine them with the optional herbicides of Turnblad, and use them in a method as claimed. Senn only teaches that the insecticides described in Senn can be applied to the seed. Similarly, Szczepanski does not teach or suggest that triazines or chloroacetamides should be selected from the numerous categories of optional herbicides mentioned in Turnblad and applied along with an insecticide as recited in new claim 23. More importantly, none of the references teach or suggest protecting corn from herbicidal injury by the use of insecticide.

Thus, the Examiner fails to establish a reason 1) to select these compounds from the numerous additives disclosed in Turnblad and 2) to use the insecticide to minimize "injury to corn caused by an herbicide treatment of the corn" as recited in new claim 23. Applicants thus respectfully submit that the Examiner has failed to set forth a *prima facie* case of obviousness for new claim 23.

B. Unexpected Results

Even if a *prima facie* case of obviousness was established, the method of new claim 23 exhibits unexpected results as one of ordinary skill in the art would not expect that applying insecticide to a corn seed would protect against injury caused by an herbicide applied to the corn. The finding by the inventor is quite surprising. The claims fully set forth these surprising results, and therefore, are commensurate with the results.

The specification displays the results of testing corn plants using the method of claim 23 in numerous examples. *See* Specification, Examples, pg. 21-27. Testing was separately performed in both growth chambers and field conditions, and pre-emergent and post-emergent herbicide applications were performed in both testing conditions. *Id.* In each of the examples, the surprising results showed that corn plants emerging from seeds treated beforehand with

insecticide and then applied with herbicide showed less phytotoxicity than plants emerging from untreated seeds. The treated seeds visually showed less stunting, more vigorous growth, more tillers, and less yellowing. Thus, the insecticide quite unexpectedly protects the corn from injury by the herbicide.

For example, in Example 1A, for the pre-emergent herbicide treatments in growth chambers, some corn seeds were treated with insecticides while others remained untreated, and the seeds were planted in small pots. Herbicides were then applied to soil surface one day later, except for a control soil that received no herbicide treatment. The pots were maintained in controlled-environment growth chambers to simulate normal cold, moist field conditions of the spring, which can stress young seedlings and increase phytotoxicity response of seedlings to herbicides. Evaluations of the crop response were made at 6, 16, and 22 days after herbicide application. The surprising results showed that the plants emerging from seeds treated beforehand with insecticide showed less phytotoxicity than plants emerging from untreated seeds. The untreated seeds visually showed more stunting, less vigorous growth, less tillers, yellowing, and other recognizable signs of phytotoxicity.

In Example 1B, for the post-emergent herbicide treatments in growth chambers, some corn seeds were treated with insecticides while others remained untreated. The seeds were planted in small pots and maintained in controlled-environment growth chambers set to simulate normal conditions of the spring. The corn plants were sprayed with herbicides 3 days later, at the 2- leaf stage, except for a control soil that received no herbicide treatment. Evaluations of crop response were made at 7 and 11 days after herbicide application. The surprising results again showed that the plants emerging from seeds treated with insecticide showed less phytotoxicity than plants emerging from untreated seeds.

In Example 2A, for the pre-emergent herbicide treatments in field experiments, some corn seeds were treated with several insecticides while others remained untreated, and the seeds were planted into field plots at three locations. Several commercial herbicide treatments were then applied to the soil surface, except for a control soil that received no herbicide treatment. Multiple evaluations of crop response were made between 2 and 9 weeks after herbicide application. The surprising results again showed that the plants emerging from seeds treated with insecticide showed less phytotoxicity than plants emerging from untreated seeds.

In Example 2B, for the post-emergent herbicide treatments in field experiments, some corn seeds were treated with several insecticides, while others remained untreated, and the seeds were planted into field plots. Once the corn plants from the planted seeds grew to the 3- to 4-leaf stages, several herbicides were applied over the corn plants at recommended commercial rates and also at three times the commercial rates, except for a control soil that received no herbicide treatment. Evaluations of the crop response were made approximately 1 to 7 weeks after herbicide application. The surprising results again showed that the plants emerging from seeds treated with insecticide again showed less phytotoxicity than plants emerging from untreated seeds, and certain types of insecticides showed exceptional results.

In Example 2C, for herbicide treatments in field experiments, corn seeds were treated with different types of insecticides and planted in a field, with one row of seeds not being treated with insecticide. Several herbicide treatments were applied to the soil surface and/or over the top of the emerged corn plants, except for a control soil that received no herbicide treatment. Crop responses were evaluated at 2 weeks after application. Again, the results showed that plants emerging from seeds treated with insecticide showed less phytotoxicity than plants emerging from untreated seeds, and certain types of insecticides showed exceptional results.

In Example 2D, for herbicide treatments in field experiments, some corn seeds were first treated with insecticides while others remained untreated. The seeds were planted in a field, and an herbicide was then applied over the entire field soil surface. The surprising results again showed that for the rows of seeds treated with insecticides, there was visually less plant stunting and less chlorotic/necrotic leaves.

Thus, in each of the numerous examples, the seeds treated beforehand with insecticide showed visually less phytotoxicity than untreated seeds. There is nothing in the prior art that would indicate that an insecticide would reduce or prevent herbicidal injury. In fact, one of ordinary skill in the art would expect that the addition of insecticide to corn treated with herbicide would have no effect or would compound the effect of herbicidal injury and phytotoxicity, thus, the method exhibit unexpected results. The unexpected results demonstrated in the examples evidence the non-obviousness of claim 23 and also rebut any finding that Turnblad in view of Senn and Szczepanski set forth a *prima facie* case of obviousness.

New claim 23 would not have been rendered obvious by Turnblad in view of Senn and Szczepanski. Claims 24-37 depend from claim 23 and, thus, also would not have been rendered obvious by Turnblad in view of Senn and Szczepanski. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection.

Conclusion

In view of the amendments and remarks above, Applicants respectfully submit that this application is in condition for allowance and request favorable action thereon. The Examiner is invited to contact the undersigned if any additional information is required.

As this response is filed within the shortened statutory period for reply, Applicants believe that no fees are due. If any additional fees are required, they may be charged to Deposit Account No. 50-2510, referencing Attorney Docket No. CS-7890.

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Respectfully submitted,

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